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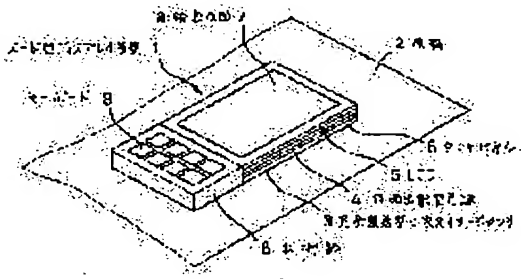
(54) CARD-SHAPED DISPLAY DEVICE

(57)Abstract:
PURPOSE: To integrate a reading part and a display part, to form a display device into a shape like a card, also to instantly read an original image and to display it.
CONSTITUTION: The device is provided with a complete contact type two-dimensional image sensor 3 which is placed on the original in tight contact with the original and for reading the original image in a reading area, a both-side emission type light source 4 which is laminated on the two-dimensional image sensor 3 and for emitting illuminating light downward and illuminating the original surface through the two-dimensional image sensor and also for emitting the illuminating light upward, a liquid crystal display 5 which is laminated on the both-side emission type light source 4 and for displaying the image by using the illuminating light which is emitted upward. The original image read by the two-dimensional image sensor 3 is processed by a control part 8 so as to be enlarged, or translated, and then, it is displayed on the liquid crystal display 5.



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1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]
[Claim 1]A card shape display device comprising:
A full adhesion type two-dimensional image sensor which sticks and lays on a manuscript and reads a manuscript picture of reading area.
A double-sided outgoing radiation type light source which laminate on this two-dimensional image sensor, receive caudad, emit illumination light, and a manuscript surface is illuminated through said two-dimensional image sensor, and emits illumination light also to the upper part.
A liquid crystal display which carries out image display using illumination light which laminates on this double-sided outgoing radiation type light source, and is emitted to said upper part.

[Claim 2]The card shape display device according to claim 1 provided with an image conversion means which expands a read manuscript picture and is displayed on a liquid crystal display.
[Claim 3]The card shape display device comprising according to claim 1:
A means to specify a specific word or a text among read manuscript pictures.

A translating means which translates a specified specific word or a text into a specific language.
A means to display a translated language collectively with said specific word or a text.

[Claim 4]The card shape display device comprising according to claim 1:
A means to specify a specific Chinese character, a word, a foreign language, etc. among read manuscript pictures.
A means which reads reading, such as a specified specific Chinese character, a word, and a foreign language, a vocabulary, and a translation word from a built-in memory measure.
Said specific Chinese character, a word, a foreign language, etc. and said means corresponding to it to read and to display a vocabulary and a translation word collectively.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application]Especially this invention relates to the card shape display device used for an electronic magnifying device, an electronic translating apparatus, or an electronic dictionary about a card shape display device.
[0002]
[Description of the Prior Art]Conventionally, a picture is read with a one-dimensional line sensor, and the device which carries out output displaying of the picture on a printer or a display is known well.
[0003]
[Problem(s) to be Solved by the Invention]However, since read time not only becomes long, but a one-dimensional line sensor was relatively moved to a two-dimensional picture, operation of scanning was needed and a reader and an output unit became separate when using a one-dimensional line sensor, the miniaturization was very difficult.
[0004]This invention was made in order to solve the problem of the above-mentioned conventional technology, unifies a reading section and an indicator, makes them card shape, and moreover is read immediately, and an object of this invention is to provide

the card shape display device which displayed it.

[0005]

[Means for Solving the Problem]This invention is characterized by a card shape display device comprising the following, in order to attain this purpose.

A full adhesion type two-dimensional image sensor which sticks and lays on a manuscript and reads a manuscript picture of reading area.

A double-sided outgoing radiation type light source which laminate on this two-dimensional image sensor, receive caudad, emit illumination light, and a manuscript surface is illuminated through a two-dimensional image sensor, and emits illumination light also to the upper part.

A liquid crystal display which carries out image display using illumination light which laminates on a double-sided outgoing radiation type light source, and is emitted to the upper part.

[0006]

[Function]According to the above-mentioned composition, a manuscript picture can be read with the two-dimensional image sensor stuck on the manuscript, and it can be promptly displayed on a liquid crystal display. And the double-sided outgoing radiation type light source inserted into the two-dimensional image sensor and the liquid crystal display in this case illuminates a manuscript surface by one side, and it turns into a light source of a liquid crystal display display on the other hand.

[0007]This invention is applicable to an electronic magnifying device, an electronic translating apparatus, an electronic dictionary, a business-card filing device, or an electronic hand written character recognition device.

[0008]

[Example]Hereafter, with reference to drawings, an example is described in detail. Drawing 1 is what showed one example of this invention, and 1 is the card shape display device laid on the manuscript 2. Thickness is expanded and shown. The liquid crystal display (henceforth LCD) which carries out image display to the full adhesion type two-dimensional image sensor 3 which sticks the card shape display device 1 to a manuscript, and reads a manuscript picture, and the double-sided outgoing radiation type light source 4 which emits light to up-and-down both sides, and the touch panel 6 are laminated by this order.

7 is a picture display surface in which the picture displayed on LCD5 through the touch panel 6 is in sight.

8 is a control section which has the keyboard 9 adjoined and formed in the picture

display surface 7.

[0009]As the full adhesion type two-dimensional image sensor 3, The two-dimensional image sensor section and poly-Si TFT (or) which consist of a-Si on a glass substrate [a-Si TFT and] The actuator which consists of c-SiTFT (SOI) is allocated, the actuator which consists of the two-dimensional image sensor section and c-SiTFT (SOI) which consist of a c-Si photo-diode is allocated on the thing which covered an it top by the protective layer, or a glass substrate, and there are some etc. which covered an it top by the protective layer.

[0010]As the double-sided outgoing radiation type light source 4, what was constituted from EL, a double-sided outgoing radiation type edge light, a double-sided outgoing radiation type light guide plate (it sandwiches with a prism plate), etc. is used.

[0011]It is LCD with a circumference drive circuit built-in [using TFT as LCD5], and a highly precise full color thing is used.

[0012]The character which drawing 2 is what showed the system block of this example, and was read with the two-dimensional image sensor 3, Original information, such as a picture, is displayed on LCD5 as a print-out through the output processing part 13, after an A/D conversion, coding processing, etc. are made by the input processing part 11 and various processing is made by the data processing part 12. The input processing part 11, the data processing part 12, and the output processing part 13 are built in the control section 8 containing CPU, and the internal memory and the memory card 14, the touch panel 6, and the keyboard 9 are connected to this. After output data is processed by the transmission treating part 15, transmission to other printers and external files 16 of it is attained.

[0013]In this example constituted in this way, it is applicable as a various device as shown below.

(1) The electronic magnifying device card shape display device 1 is stuck on the manuscript 2, lay it, illuminate a manuscript surface with the double-sided outgoing radiation type light source 4, and read a manuscript picture with the two-dimensional image sensor 3. Expanding processing of the read picture information is carried out by the control section 8, and an enlarged display is carried out to LCD5 in the picture display surface 7 by the illumination light of the double-sided outgoing radiation type light source 4. It is convenient for the old man etc. who cannot be seen easily as for a fine character.

[0014](2) Read a manuscript picture with the electronic translating apparatus two-dimensional image sensor 3 and the double-sided outgoing radiation type light

source 4, and display a read picture on the picture display surface 7 with LCD5 and the double-sided outgoing radiation type light source 4. Then, the word to translate and a text are specified with the touch panel 6 or the keyboard 9, data processing is carried out by the internal memory or the memory card 14, and the data processing part 12, and a translation word and a text are collectively displayed near [which is displayed] an original word and the text.

[0015](3) Read a manuscript picture with the electronic dictionary two-dimensional image sensor 3 and the double-sided outgoing radiation type light source 4, and display a read picture on the picture display surface 7 with LCD5 and the double-sided outgoing radiation type light source 4. A reading Chinese character, a word, a foreign language, etc. are specified with the touch panel 6 or the keyboard 9, and data processing is carried out by the internal memory or the memory card 14, and the data processing part 12, it reads, and a vocabulary, a translation word, etc. are displayed [neighborhood / which is displayed /, such as an original reading Chinese character, a word, and a foreign language,] collectively.

[0016](4) Read a business card with the business-card filing device two-dimensional image sensor 3 and the double-sided outgoing radiation type light source 4. Or in the input by the keyboard 9, data processing is carried out by the internal memory or the memory card 14, and the data processing part 12, personal information, a mug shot, etc. are read, and it displays on the picture display surface 7.

[0017](5) If a handwritten character is read with the electronic handwritten character recognition system two-dimensional image sensor 3 and the double-sided outgoing radiation type light source 4 and it specifies with the touch panel 6 or the keyboard 9, Data processing is carried out by the internal memory or the memory card 14, and the data processing part 12, and a recognition character translation character etc. are displayed on the picture display surface 7 with LCD5 and the double-sided outgoing radiation type light source 4. System transmission is carried out using means, such as light, an ultrasonic wave, or an electric wave, and it outputs with a printer etc.

[0018]

[Effect of the Invention]As explained above, according to this invention, it can become a small information tool which complements them to the poor field of the individual corresponding to ** internationalization and an aging society.

** Since each function can carry out processing arithmetic using each memory or the memory information on a memory card, its use area of the function is very wide.

** Since a manuscript picture is read with a two-dimensional image sensor, information

inputting time is dramatically short.

** Since a double-sided outgoing radiation type light source is used, slimming down becomes possible and is convenient to carry as a card.

** Since image input information is immediately displayed by the LCD screen, the check of an input-pairs elephant can be performed in an instant.

** All or a part of processing capabilities can be directed, looking at a picture on a LCD screen. Since a processing picture is combined with an original image and can be displayed, check correction of a processing capability can be performed promptly.

** By system transmission, since connection with external information equipment is possible, functional expansion is easy.

The effect of ** is done so.

TECHNICAL FIELD

[Industrial Application]Especially this invention relates to the card shape display device used for an electronic magnifying device, an electronic translating apparatus, or an electronic dictionary about a card shape display device.

PRIOR ART

[Description of the Prior Art]Conventionally, a picture is read with a one-dimensional line sensor, and the device which carries out output displaying of the picture on a printer or a display is known well.

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OPERATION

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EXAMPLE

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[0017](5) If a handwritten character is read with the electronic handwritten character recognition system two-dimensional image sensor 3 and the double-sided outgoing radiation type light source 4 and it specifies with the touch panel 6 or the keyboard 9, Data processing is carried out by the internal memory or the memory card 14, and the data processing part 12, and a recognition character translation character etc. are displayed on the picture display surface 7 with LCD5 and the double-sided outgoing radiation type light source 4. System transmission is carried out using means, such as light, an ultrasonic wave, or an electric wave, and it outputs with a printer etc.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]It is a perspective view of the card shape display device of one example of this invention.

[Drawing 2]It is a system block figure of the example.

[Description of Notations]

1 -- A card shape display device and 2 -- A manuscript and 3 -- Two-dimensional image

sensor, 4 -- A double-sided outgoing radiation type light source and 5 -- A liquid crystal display (LCD) and 6 -- A touch panel and 7 -- A picture display surface and 8 -- A control section and 9 -- A keyboard and 11 -- An input processing part and 12 -- data processing part and 13 -- An output processing part and 14 -- Memory memory card.

(19)日本国特許庁（ＪＰ）　(12)**公開特許公報**（Ａ）　(11)特許出願公開番号

特開平6－175590

(43)公開日　平成６年(1994)６月24日

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	1/1335	５３０	7408－2K		
Ｈ０４Ｎ	1/04		Ａ 7251－5C		
// Ｇ０６Ｆ	15/02	３１５	Ａ 7343－5L		

審査請求　未請求　請求項の数４（全　５　頁）

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(22)出願日　平成４年(1992)12月９日

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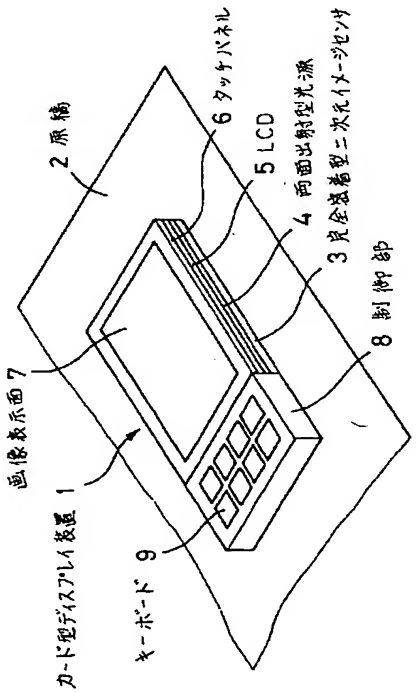
(54)【発明の名称】　カード型ディスプレイ装置

(57)【要約】

【目的】　読取部と表示部を一体化してカード状とし、かつ原稿画像を即時に読み取り、それを表示する。

【構成】　原稿上に密着して載置し、読取エリアの原稿画像を読み取る完全密着型二次元イメージセンサ３と、この二次元イメージセンサ３上に積層され、下方に対して照明光を発し二次元イメージセンサを通して原稿面を照明すると共に、上方に対しても照明光を発する両面出射型光源４と、両面出射型光源４上に積層され、上方に対して発する照明光を用いて画像表示する液晶ディスプレイ５とを備えており、二次元イメージセンサ３で読み取った原稿画像を制御部８で処理して拡大し、あるいは翻訳して液晶ディスプレイ５に表示させる。



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【特許請求の範囲】

【請求項1】　原稿上に密着して載置し、読取エリアの原稿画像を読み取る完全密着型二次元イメージセンサと、該二次元イメージセンサ上に積層され、下方に対して照明光を発し前記二次元イメージセンサを通して原稿面を照明すると共に、上方に対しても照明光を発する両面出射型光源と、該両面出射型光源上に積層され、前記上方に対して発する照明光を用いて画像表示する液晶ディスプレイとからなることを特徴とするカード型ディスプレイ装置。

【請求項2】　読み取った原稿画像を拡大して液晶ディスプレイに表示する画像変換手段を備えていることを特徴とする請求項1記載のカード型ディスプレイ装置。

【請求項3】　読み取った原稿画像のうち特定の単語又は文章を指定する手段と、指定した特定の単語又は文章を特定の言語に翻訳する翻訳手段と、前記特定の単語又は文章と共に翻訳した言語を併せて表示する手段とを備えていることを特徴とする請求項1記載のカード型ディスプレイ装置。

【請求項4】　読み取った原稿画像のうち特定の漢字、単語、外国語等を指定する手段と、指定した特定の漢字、単語、外国語等の読み、語彙、翻訳語を内蔵の記憶手段から読み出す手段と、前記特定の漢字、単語、外国語等とそれに対応する前記読み、語彙、翻訳語を併せて表示する手段とを備えていることを特徴とする請求項1記載のカード型ディスプレイ装置。

【発明の詳細な説明】

【０００１】

【産業上の利用分野】本発明は、カード型ディスプレイ装置に関し、特に、電子拡大装置、電子翻訳装置あるいは電子辞書などに利用するカード型ディスプレイ装置に関するものである。

【０００２】

【従来の技術】従来、一次元ラインセンサにより画像を読み取り、その画像をプリンタやディスプレイにより出力表示する装置はよく知られている。

【０００３】

【発明が解決しようとする課題】しかしながら、一次元ラインセンサを使用する場合は、二次元画像に対して一次元ラインセンサを相対的に移動させ、走査するという動作が必要になり、読取時間が長くなるだけでなく、読取装置と出力装置が別個になるため、小型化が極めて困難であった。

【０００４】本発明は、上記従来技術の問題点を解決するためになされたもので、読取部と表示部を一体化してカード状とし、しかも即時に読み取り、それを表示するようにしたカード型ディスプレイ装置を提供することを目的とする。

【０００５】

【課題を解決するための手段】この目的を達成するため

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に、本発明のカード型ディスプレイ装置は、原稿上に密着して載置し、読取エリアの原稿画像を読み取る完全密着型二次元イメージセンサと、この二次元イメージセンサ上に積層され、下方に対して照明光を発し二次元イメージセンサを通して原稿面を照明すると共に、上方に対しても照明光を発する両面出射型光源と、両面出射型光源上に積層され、上方に対して発する照明光を用いて画像表示する液晶ディスプレイとからなることを特徴とするものである。

【０００６】

【作用】上記構成によれば、原稿上に密着した二次元イメージセンサにより原稿画像を読み取り、それを直ちに液晶ディスプレイに表示することができる。そして、この場合、二次元イメージセンサと液晶ディスプレイに挟まれた両面出射型光源は、一方で原稿面を照明すると共に他方で液晶ディスプレイ表示の光源となる。

【０００７】本発明は、電子拡大装置、電子翻訳装置、電子辞書、名刺ファイル装置、あるいは電子手書文字認識装置などに応用することができる。

【０００８】

【実施例】以下、図面を参照して実施例を詳細に説明する。図1は、本発明の一実施例を示したもので、1は原稿2上に載置されたカード型ディスプレイ装置である。なお、厚みは拡大して示してある。カード型ディスプレイ装置1は、原稿に密着して原稿画像を読み取る完全密着型二次元イメージセンサ3と、上下両面に光を出射する両面出射型光源4と、画像表示する液晶ディスプレイ(以下ＬＣＤという)と、タッチパネル6がこの順に積層されており、7はタッチパネル6を通してＬＣＤ5に表示された画像が見える画像表示面である。また8は画像表示面7に隣接して設けられたキーボード9を有する制御部である。

【０００９】完全密着型二次元イメージセンサ3としては、ガラス基板上にa-Siからなる二次元イメージセンサ部及びpoly-Si ＴＦＴ(あるいはa-Si ＴＦＴ、c-SiＴＦＴ(ＳＯＩ))からなる駆動部を配設し、その上を保護層で覆ったもの、または、ガラス基板上にc-Siフォトダイオードからなる二次元イメージセンサ部及びc-SiＴＦＴ(ＳＯＩ)からなる駆動部を配設し、その上を保護層で覆ったものなどがある。

【００１０】また、両面出射型光源4としては、ＥＬ、両面出射型エッジライト、両面出射型導光板(プリズム板でサンドイッチ)等で構成したものが使用される。

【００１１】さらに、ＬＣＤ5としては、ＴＦＴを用いた周辺駆動回路内蔵のＬＣＤで、高精度フルカラーのものが用いられる。

【００１２】図2は、本実施例のシステムブロックを示したもので、二次元イメージセンサ3で読み取った文字、画像等の原情報は入力処理部11でＡ／Ｄ変換、符号化処理等がなされ、データ処理部12で各種処理がなされ

た後、出力処理部13を経て、出力情報としてＬＣＤ５に表示される。入力処理部11、データ処理部12及び出力処理部13はＣＰＵを含む制御部8に内蔵されており、これには内蔵メモリ及びメモリカード14やタッチパネル6及びキーボード９が接続されている。また、出力データは、転送処理部15で処理された後、他のプリンタや外部ファイル16に転送可能になっている。

【００１３】このように構成された本実施例では、次に示すような各種装置として応用することができる。

(1) 電子拡大装置

カード型ディスプレイ装置1を原稿2上に密着して載置し、両面出射型光源4により原稿面を照明し、二次元イメージセンサ3で原稿画像を読み取る。読み取った画像情報は制御部8で拡大処理され、ＬＣＤ５と両面出射型光源4の照明光により、画像表示面7に拡大表示する。細かい字が見えにくい老人等にとって重宝である。

【００１４】(2) 電子翻訳装置

二次元イメージセンサ3及び両面出射型光源4により原稿画像を読み取り、ＬＣＤ５及び両面出射型光源4により読取画像を画像表示面7に表示する。そこで、翻訳する単語、文章をタッチパネル6あるいはキーボード９により指定し、内蔵メモリあるいはメモリカード14、データ処理部12によりデータ処理して、翻訳単語、文章を、表示されている原単語、文章の近傍に併せて表示する。

【００１５】(3) 電子辞書

二次元イメージセンサ3及び両面出射型光源4により原稿画像を読み取り、ＬＣＤ５及び両面出射型光源4により読取画像を画像表示面7に表示する。読取漢字、単語、外国語等をタッチパネル6あるいはキーボード９により指定し、内蔵メモリあるいはメモリカード14、データ処理部12によりデータ処理して、読み、語彙、翻訳語等を、表示されている原読取漢字、単語、外国語等の近傍に併せて表示する。

【００１６】(4) 名刺ファイル装置

二次元イメージセンサ3及び両面出射型光源4により名刺を読み取る。あるいはキーボード９による入力で、内蔵メモリあるいはメモリカード14、データ処理部12によりデータ処理し、個人情報、顔写真等を読み出して画像表示面7に表示する。

【００１７】(5) 電子手書き文字認識装置

二次元イメージセンサ3及び両面出射型光源4により手書き文字を読み取り、タッチパネル6あるいはキーボード９により指定すると、内蔵メモリあるいはメモリカード14、データ処理部12によりデータ処理して、ＬＣＤ５、両面出射型光源4により認識文字翻訳文字等を画像表示面7に表示する。また、光、超音波、あるいは電波等の手段を用いてシステム転送し、プリンタ等により出力する。

【００１８】

【発明の効果】以上説明したように、本発明によれば、

① 国際化、高齢化社会に対応する個人の不得意分野に対し、それらを補完する小型の情報ツールとなり得る。

② 各機能は、各メモリあるいはメモリカードの記憶情報により処理演算できるため、その機能の利用範囲が極めて広い。

③ 原稿画像を二次元イメージセンサにより読み取るので、情報入力時間が非常に短い。

④ 両面出射型光源を用いるので薄型化が可能になり、カードとして携帯に便利である。

⑤ 画像入力情報が即時にＬＣＤ画面に表示されるので、入力対象の確認が瞬時にできる。

⑥ ＬＣＤ画面上で画像を見ながら処理機能の全部あるいは一部を指示することができる。また、処理画像を原画像と併せて表示できるので、処理機能の確認修正が直ちにできる。

⑦ システム転送により外部情報機器との接続が可能なため、機能拡充が容易である。

等の効果を奏するものである。

【図面の簡単な説明】

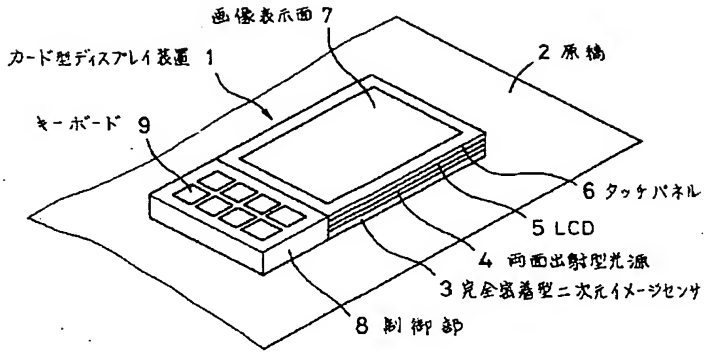
【図1】本発明の一実施例のカード型ディスプレイ装置の斜視図である。

【図2】同実施例のシステムブロック図である。

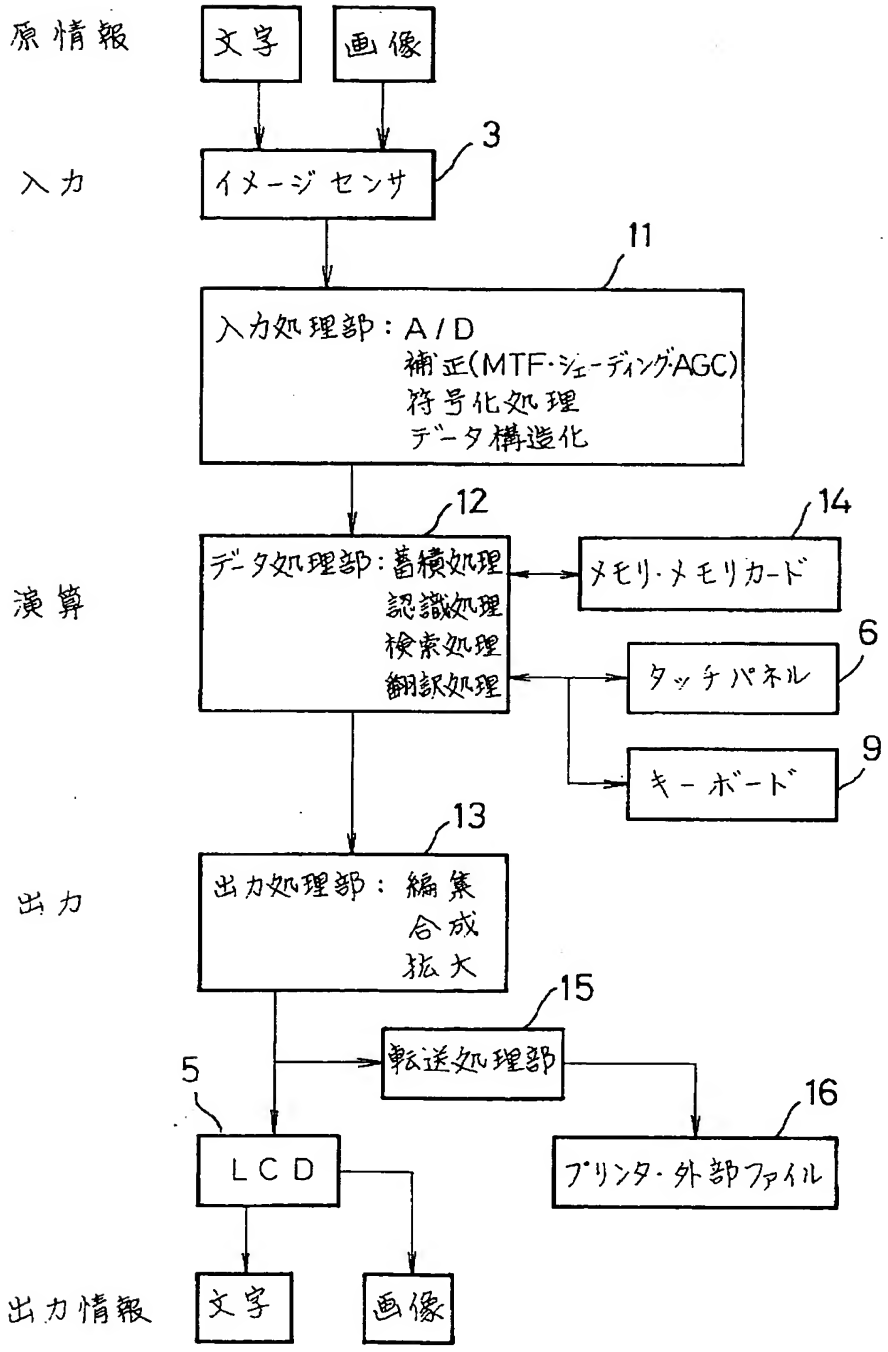
【符号の説明】

1 … カード型ディスプレイ装置、 2 … 原稿、 3 … 二次元イメージセンサ、 4 … 両面出射型光源、 5 … 液晶ディスプレイ(ＬＣＤ)、 6 …タッチパネル、 7 … 画像表示面、 8 … 制御部、 9 … キーボード、11 … 入力処理部、 12 … データ処理部、 13 … 出力処理部、 14 … メモリ・メモリカード。

【図1】


画像表示面 7
カード型ディスプレイ装置 1
2 原稿
キーボード 9
6 タッチパネル
5 LCD
4 両面出射型光源
3 完全密着型二次元イメージセンサ
8 制御部

【図2】


原情報
文字
画像
入力
イメージセンサ
3
11
入力処理部：A/D
補正(MTF・シェーディング・AGC)
符号化処理
データ構造化
12
14
演算
データ処理部：蓄積処理
認識処理
検索処理
翻訳処理
メモリ・メモリカード
6
タッチパネル
9
キーボード
13
出力
出力処理部：編集
合成
拡大
15
転送処理部
5
16
LCD
プリンタ・外部ファイル
出力情報
文字
画像